Claims

1. A prosthetic device for repairing or replacing cartilage or cartilage like-tissue (1) comprising
- at least one layer comprising at least partially oriented fibers (2),
- a base component (4) to anchor said at least one layer of fibers (2) in subchondral environment and
- a stabilization area (3) provided between said at least one layer comprising fibers (2) and said base component (4),
wherein said fibers (2) are aligned essentially in parallel to the insertion axis of the prosthetic device and form a brush-like structure.

2. The device according to claim 1,
wherein said fibers (2) are aligned to more than 50, preferably more than 90 %.

3. The device according to claim 1 or 2,
wherein the fiber material (2) includes a mineral material, synthetic polymers or molecules, natural polymers or molecules, biotechnologically derived polymers

or molecules, biomacromolecules, or any combination thereof.

4. The device according to claim 3, wherein the fiber diameter is in a range of 50 nm to 1 mm.

5. The device according to claim 4, wherein said fiber diameter is in a range of 1 μm to 250 μm.

6. The device according to any of claims 3 to 5, wherein the fibers (2) have a liquid absorbing capacity in a range of 0,1 to 99,9 %.

7. The device according to claim 6, wherein said liquid absorbing capacity is in a range of 20,0 to 99,0 %.

8. The device according to claim 6 or 7, wherein the liquid is an aqueous solution and/or body fluids.

9. The device according to at least one of claims 1 to 8, wherein the base component (4) comprises a material used as a bone substitute.

10. The device according to claim 9,
wherein said bone substitute is a material as defined in claim 3.

11. The device according to claim 9,
wherein said material is a synthetic ceramic containing at least one of the following components: calcium phosphate, calcium sulfate, calium carbonate, or any mixture thereof.

12. The device according to claim 11,
wherein said calciumphosphate containing at least one of the following components: di-calciumphosphatedihydrate ($CaHPO_4x2H_2O$), dicalciumphosphate ($CaHPO_4$), alpha-tricalciumphosphate (alpha-$Ca_3(PO_4)_2$), beta-tricalciumphosphate (beta-$Ca_3(PO_4)_2$), calcium deficient hydroxylapatite ($Ca_9(PO_4)_5(HPO_4)OH$), hydroxylapatite ($Ca_{10}(PO_4)_6OH_2$), carbonated apatite ($Ca_{10}(PO_4)_3(CO3)_3)(OH)_2$), fluorapatite ($Ca_{10}(PO_4)_6(F,OH)_2$), chlorapatite ($Ca_{10}(PO_4)_6(Cl,OH)_2$), whitlockite ($(Ca,Mg)_3(PO_4)_2$), tetracalciumphosphate ($Ca_4(PO_4)_2O$), oxyapatite ($Ca_{10}(PO_4)_6O$), beta-calciumpyrophosphate (beta-$Ca_2(P_2O_7)$), alpha-calciumpyrophosphate, gama-calcium-pyrophosphate, octacalciumphosphate ($Ca_8H_2(PO_4)_6x5H_2O$).

13. The device according to claim 9,
wherein said material is a synthetic ceramic containing

metallic, semimetallic ions, and/or non-metallic ions, preferably magnesium, silicon, sodium, potassium, and/or lithium.

14. The device according to any of the claims 9-11b wherein the material is a composite material comprising at least a polymer component and a mineral phase.

15. The device according to any of claims 9 to 14, wherein the bone substitute material is highly porous with interconnecting pores.

16. The device according to any of claims 9 to 15, wherein the shape of the base component (4) is round cylindrical or conical.

17. The device according to claim 16, wherein the diameter of the base component (4) ranges between 2 and 30 mm, with a height being 1 to 30 mm.

18. The device according to claim 16, wherein the diameter of the base component (4) ranges between 4 and 20 mm, with a preferred height being between 1 to 6 mm.

19. The device according to at least one of claims 1 to 18 wherein said stabilization area (3) is a zone comprising at least one layer.

20. The device according to claim 19, wherein said zone has a thickness of 1 nm to 1 mm.

21. The device according to claim 19 or 20, wherein said zone is porous.

22. The device according to any of claims 19 to 21, wherein the layer system is composed of a chemical substance.

23. The device according to at least one of preceding claims further comprising at least one externally added component.

24. The device according to claim 23, wherein said components are cells of different origin.

25. The device according to claim 24, wherein said cells are autologous cells, allogenous cells, xenogenous cells, transfected cells and/or genetically engineered cells.

26. The device according to claim 23, 24 or 25, wherein chondrocytes, chondral progenitor cells, pluripotent cells, tutipotent cells or combinations thereof are present throughout the fiber layer(s) (2).

27. The device according to claim 23, 24 or 25, wherein osteoplasts, osteo progenitor cells, pluripotent cells, tutipotent cells or combinations thereof are present throughout the base component (4).

28. The device according to claim 23, 24 or 25, wherein blood or any fraction thereof is present throughout the base component (4).

29. The device according to claim 23, wherein pharmaceutical compounds are contained.

30. A prosthetic device for repairing or replacing cartilage or cartilage like-tissue (1) comprising
- at least one layer comprising at least partially oriented fibers (2),
- a base component (4) to anchor said at least one layer of fibers (2) in subchondral environment and
- a stabilization area (3) provided between said at least one layer comprising fibers (2) and said base component (4),

wherein said fibers (2) are aligned essentially perpendicularly to a top surface of the base component facing the fibers.

31. A prosthetic device for repairing or replacing cartilage or cartilage like-tissue (1) comprising
- at least one layer comprising fibers (2),
- a base component (4) to anchor said at least one layer of fibers (2) in subchondral environment and
- a cell barrier layer provided between said at least one layer comprising fibers (2) and said base component (4).

32. A use of the device according to at least one of the preceding claims for implantation in articulating joints in humans and animals.

33. The use according to claim 32 for regeneration of articulator cartilagenous tissue.